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ACCURATE TRANSLATION OF THE ANNEX OF THE INTERNATIONAL PRELIMINARY EXAMINATION REPORT

REVISED REPLACEMENT CLAIMS AS FILED 9 SEPTEMBER 2004

New Patent Claims

1. A method for determining a steering torque for the steering wheel of a motor vehicle, wherein a steering angle for the steered wheels is predefined by the driver by means of the steering wheel using a continuous mechanical connection between the steering wheel and the steered wheels with a steering-wheel torque which represents the forces on the vehicle axle being active, said steering-wheel torque being caused as a result of the continuous mechanical connection existing between the steering wheel and the steered wheels and wherein a manual torque (M_soll) which is superimposed on the steering-wheel torque (M_ist) is determined using at least one axle model.

2. The method as claimed in claim 1, characterized in that the manual torque (M_soll) is determined in such a way that actuation of the steering wheel in a direction which is favorable in terms of vehicle movement dynamics is made easier.

3. The method as claimed in claim 1 or 2, characterized in that the manual torque (M_soll) is determined in such a way that actuation of the steering wheel in a direction which is unfavorable in terms of vehicle movement dynamics is made more difficult.

4. The method as claimed in one of claims 1 to 3, characterized in that the manual torque (M_soll) is determined by means of a model, in particular an observer.

5. The method as claimed in one of claims 1 to 3, characterized in that the manual torque (M_soll) is determined from a characteristic diagram.

6. The method as claimed in one of the preceding claims, characterized in that the manual torque (M_soll) is determined as a function of a travel situation which is derived from measured variables.

7. The method as claimed in claim 6, characterized in that, from the travel situation which is determined, an axle model which is favorable for driving the travel situation is determined and the manual torque is determined on the basis of this axle model.

8. The method as claimed in claim 7, characterized in that the manual torque (M_soll) is determined in such a way that the resulting torque from the steering-wheel torque (M_ist) and manual torque (M_soll) correspond to the steering-wheel torque of the favorable axle model.

9. The method as claimed in one of the preceding claims, characterized in that the manual torque (M_soll) is determined as a function of at least one value obtained from the setpoint driving behavior and actual driving behavior.

10. The method as claimed in one of the preceding claims, characterized in that the manual torque (M_soll) is determined taking into account at least one of the vehicle-related variables comprising the steering angle, yaw rate, rolling speed, pitch rate, vehicle speed, wheel speeds, wheel braking pressure, wheel acceleration, longitudinal acceleration, lateral acceleration, vertical acceleration, steering torque and wheel supporting forces.

11. The method as claimed in one of the preceding claims, characterized in that the manual torque (M_soll) is determined as a function of at least one device for sensing the road profile such as a navigation system or a visual sensing device.

12. The method as claimed in claim 1, characterized in that, by virtue of the fact that the steering torque (M_soll) is superimposed on the steering-wheel torque (M_ist), the driver is prompted to perform a steering action on the steering wheel which generates steering angles which correspond to a better driving behavior of the vehicle.

13. A motor vehicle having a steering wheel for a driver to predefine a steering angle, a torque generator (111) for applying a manual torque (M_soll) to the steering wheel, characterized in that the manual torque (M_soll) is determined in accordance with a method as claimed in one of the preceding claims.